

## CHAPTER 8: SUMMARY OF KEY POINTS IN PREVIOUS CHAPTERS

This chapter summarizes many of the key points on infant feeding that are covered in this publication. This section can be used to plan nutrition education sessions (e.g., face-to-face [individual or group], telephone, or electronic [e.g., kiosk, internet, or computer-based]) or develop nutrition education materials on infant feeding. This chapter does not provide a summary of all the possible topics to cover with caregivers on infant nutrition and feeding. Furthermore, it does not provide a summary of all the information covered in this handbook.

*To best use this chapter in planning nutrition education sessions, consider these points:*

- Base topics to be covered during an individual nutrition education session on:
  - Nutrition education needs (desired knowledge, skills, and behaviors to be learned) identified through the nutrition assessment process and other sources (e.g., through consultation with auxiliary health care and other personnel providing care to the infant); and
  - The caregiver's expressed needs identified during the assessment.
- Carefully select the information covered to include a manageable number of the most important concepts. Discuss these concepts as messages that encourage the participant to set individual, simple, and attainable goals. Provide clear and relevant “how to” actions to accomplish those goals.
- Use counseling methods/teaching strategies (e.g., participant-centered learning, motivational negotiation, facilitated group discussion, etc.) that are relevant to the participant’s nutritional risk and are easily understood by the participant.
- At follow-up, assess participant’s progress from previous session; additional topics can be discussed depending on the time available.
- Involve the participant in planning any feeding and other changes to improve the infant's nutritional status and health. If possible, also involve other family members or friends if they have any impact on the feeding and care of the infant.
- Adapt the wording of the points covered to be conversational and to accommodate the needs, learning skills, cultural and ethnic background, and language ability of the caregiver.

Additional information on planning nutrition education sessions can be found in the WIC Works Educational Materials Database online at <http://www.nal.usda.gov/wicworks/Databases/index.html>.

### **Nutritional Needs of Infants**

#### **Energy**

- Energy needs (calories) and growth patterns of infants are individual. The best indicator that an infant is getting enough calories is his growth rate in length, weight, and head

circumference. An infant's growth should be evaluated by plotting his anthropometric data on a CDC growth chart.

## **Carbohydrates**

- Carbohydrates serve as primary sources of energy to fuel normal day-to-day activities.
- Infants need carbohydrates to gain weight and grow properly.
- Some fruit juices, especially apple, pear, white grape, and prune juice, contain sugars that can cause diarrhea in infants. They should not be given until after 6 months of age and limited to 4 to 6 ounces per day.
- During the second 6 months of life, infants should be gradually introduced to fiber-containing foods, such as whole-grain cereals, vegetables, and legumes.

## **Protein**

- Breast milk and infant formula are good sources of protein. No other source of protein is needed in the first 6 months of life. In later infancy after complementary foods are introduced, sources of protein in addition to breast milk and infant formula include meat, poultry, fish, egg yolks, cheese, yogurt, and legumes.

## **Lipids**

- Breast milk and infant formula provide about 50 percent of their calories from lipids.
- Lipids allow for the absorption of the fat-soluble vitamins A, D, E, and K
- Lipids provide essential fatty acids that are required for normal brain development, healthy skin and hair, normal eye development, and resistance to infection and disease.
- Fat and cholesterol should not be limited in the diet of infants.

## **Vitamin D**

- Breastfed infants should receive 200 IU of supplemental vitamin D daily to prevent rickets.
- Breastfed infants who drink at least 500 mL of infant formula do not need supplemental vitamin D.

## **Iron**

- Full-term, breastfed infants need approximately 1 mg/kg/day of supplemental iron at 4 to 6 months of age, preferably from complementary foods (e.g., iron-fortified infant cereal and/or meats).
- An average of 2 servings of iron-rich complementary food ( $\frac{1}{2}$  oz or 15 g of dry cereal per serving), in addition to breast milk or infant formula are needed to meet the daily iron requirement.
- All formula-fed infants should receive only iron-fortified infant formula during the first year of life.

- Infants should not drink cow's milk, goat's milk, or soy beverages because they contain a small amount of iron that is poorly absorbed by infants. Consumption of these milks may lead to iron deficiency anemia.

## **Fluoride**

- Infants less than 6 months of age do not need fluoride supplements.
- Infants older than 6 months of age, whose community drinking water contains <0.3 ppm fluoride, should receive 0.25 mg sodium fluoride per day.

## **Water**

- Always follow correct infant formula preparation procedures (see Figures 6a, 6b, and 6c, pages 96 - 98).
- Commercially available “nursery” water, plain water, or other liquids (e.g., fruit juices; soda; diluted fruit punches, drinks, or ades; tea; broth; or gelatin water) should not be used to treat diarrhea, fever, vomiting, or any other illness. Do not self-treat an infant with an oral rehydration (electrolyte) solution unless recommended by a health care provider.
- Do not substitute a bottle of water or dilute beverages (fruit juice, sweetened beverages, tea, etc.) as a feeding in place of infant formula or breast milk. Do not offer water to an infant after breastfeeding or infant formula feedings. These practices can lead to water intoxication which can be life-threatening for an infant.
- Do not allow the infant to drink at will from a bottle of water or dilute liquid all day or for extended periods. Young infants need to be fed a sufficient amount of breast milk, infant formula, and appropriate complementary foods to meet their calorie and other nutrient needs.
- If a caregiver's water comes from a private or community well, they should have their water tested annually for contaminants.

## **Development of Feeding Skills**

- Each infant develops feeding skills at his or her own rate.
- A good feeding relationship exists when an infant can express his or her needs and the caregiver responds to them. Developing a good feeding relationship is important to the growth and development of the infant. When this relationship is not going well, infants can either be underfed or overfed.
- Caregivers need to learn and pay attention to their infant's hunger and satiety cues.

## **Breastfeeding**

### **Benefits of Breastfeeding**

*For the infant, breast milk or breastfeeding provides:*

- The right balance of nutrients that should be the only source of nutrition for the first 6 months of life;
- Unique bioactive factors that improve the infant's immune system and are associated with cognitive development; and
- Protection from illnesses like gastrointestinal illnesses, respiratory illnesses, and ear infections.

*For the mother, breastfeeding:*

- Helps speed the recovery from childbirth and suppresses ovulation for many women;
- May protect against breast and ovarian cancer;
- Is less expensive, more convenient, and takes less time than bottle feeding; and
- Stimulates hormones that make mothers feel more relaxed and at peace.

### **Making the Decision To Breastfeed**

- Factors that affect a mother's decision to breastfeed include the attitudes of healthcare providers; the mother's support network; hospital practices, such as providing infant formula to breastfeeding newborns; a mother's personal experience; and workplace environment.
- Research has shown that the common barriers to breastfeeding are embarrassment, lack of social support, lack of time, and competing demands on the mother.

### **Characteristics of Breast Milk**

- The first breast milk, called colostrum, is thick and yellow and contains antibodies that help fight diseases and are very healthy for the infant.
- The milk that comes in later is called mature breast milk and looks more watery. It tends to look opaque and thicker at the end of the feeding. This milk also contains important antibodies and is very nutritious for the infant.

### **Feeding Positions**

- Find a place that is comfortable where you can relax while breastfeeding.
- You should try different positions to breastfeed your infant. These positions include:
  - Lying down or side lying
  - Across the lap or cradle hold
  - Football hold or clutch hold

### **Normal Fullness of Breasts**

- During the first 1 to 2 weeks after birth, the breasts will usually enlarge. By the end of the second week, the swelling may go down – this is natural and does not mean that you are losing your milk.

### **Attaching to and Coming off the Breast**

- Wash your hands before starting to breastfeed.
- When attaching your infant to the breast, hold him or her close to you and rub the infant's chin or lower lip with the nipple. As the infant opens his or her mouth wide and the tongue is on the floor of the mouth, quickly bring the infant toward the breast and get the whole nipple and most of the dark circular part of the breast (the areola) into the infant's mouth. Hold the breast using a "C- Hold."
- Infants often come off the breast on their own. But, if you want your infant to come off the breast, slide a little finger between the corner of the infant's mouth and the breast to gently break the suction between the two.

### **Breastfeeding Frequency and Duration**

- Breastfeed your infant often during the day and night to:
  - Allow your body to make enough milk for your infant (the more you breastfeed, the more milk your body makes);
  - Prevent your breasts from becoming engorged (full and hard); and
  - Help your infant grow.
- Breastfeed your infant when he or she is hungry (the infant may wake and toss, suck on a hand, cry or fuss, or make smacking sounds). Follow your infant's lead on when and how long to breastfeed.
- Newborn infants generally breastfeed every 1 ½ to 3 hours during the day and night. If your infant does not seem hungry, continue to attempt to breastfeed about every 2-3 hours. Wake your very young infant to breastfeed if he or she sleeps longer than 4 hours.

### **Indicators of Whether an Infant Is Getting Enough Milk**

- *Your exclusively breastfed infant is likely drinking enough if he or she:*
  - Is gaining weight steadily even if slowly (this is a very important indicator);
  - Breastfeeds an appropriate number of times per day;
  - Can be heard swallowing regularly while breastfeeding (in a quiet room); and
  - Has plenty of wet and soiled diapers (bowel movements) with pale yellow or nearly colorless urine; at least 4-8 wet and 3 soiled diapers per day in the first 3-5 days of life, 6 or more wet and 3-4 soiled diapers per day by 5-7 days of age (while not being given any extra fluids besides breast milk).

### **Relieving Common Breastfeeding Problems**

#### ***Sore Nipples***

*To prevent or relieve sore nipples:*

- Care for your breasts by:
  - Keeping your nipples dry between feedings -- Air dry your nipples after breastfeeding and place dry nursing pads or similar dry breathable cloth into your bra or leave the bra flaps open (if you wear a bra). Change the pads or cloths as soon as they become wet.

- When you wash your breasts, use clean water to wash the nipples --Soap or shampoo on the nipple and areola removes natural oils from them. Rinse off soap or shampoo that drips onto the nipples and areola during a bath or shower. Avoid rubbing the nipples with a washcloth or other cloth.
- Vary the positions used to breastfeed your infant. See Figure 2, page 46, for different feeding positions.
- Newborn infants should be fed every 1 - 3 hours; if fed less often:
  - The infant may be so hungry that he or she suckles vigorously and hurts the nipples; or
  - The breast may become so full with milk that the infant can not attach onto the breast adequately and just suckles the nipple.
- Have a WIC breastfeeding expert assess if your infant is held, positioned on the breast, and suckling correctly during breastfeeding. Make sure to hold your infant in the "chest to chest, chin to breast" position and that most of the areola (the dark part of the breast) is far into his or her mouth during breastfeeding.

### ***Engorged Breasts***

*If your breasts become painfully full and firm (engorged), take these steps:*

- Place warm, moist cloths or towels on your breasts or take a hot shower for about 10 - 20 minutes **before** a feeding to facilitate the milk ejection reflex.
- Express some milk to soften the areola (the dark part of the breast) and breast and allow the nipple to protrude easily so the infant can latch on.
- Massage the breasts to encourage the flow of milk and to relieve fullness.
- Apply cold compresses (e.g., a washcloth chilled and rinsed under cold water) to the breast **after** feedings to reduce swelling and pain.
- Breastfeed frequently and effectively every 1 to 3 hours to prevent engorgement.
- Contact your health care provider or a WIC breastfeeding expert if this problem does not go away.

### ***Plugged Milk Duct***

*If you develop a tender area on your breast or a painful lump that can be felt in the breast (these symptoms usually indicate that there is a plugged milk duct), take these steps:*

- Place warm, moist cloths on the lump and the rest of the breast or take a hot shower before a feeding.
- Massage the breast from the plugged area down to the nipple **before and during** breastfeeding.
- Breastfeed frequently (at least every 2 hours) and vary the positions used to feed the infant.
- Make sure your bra is not too tight; pressure on the breast can cause plugged milk ducts.
- Breastfeed with the infant's chin positioned toward the plugged duct and start breastfeeding on the affected breast first.
- Get plenty of rest.

- Contact your health care provider if this problem does not go away.

### ***Mastitis***

*If either of your breasts becomes red or tender and/or you develop flu-like symptoms (body aches, headache, nausea, fever, chills, malaise), you may have mastitis. If you do have any of these symptoms, take these steps:*

- See your health care provider immediately if you think you have a breast infection or your infant has an untreated infection. If your health care provider prescribes antibiotics for you, they will be the kind that does not harm your infant.
- Continue breastfeeding. Breastfeed frequently and use both breasts at each feeding.
- Make sure that your infant is positioned on the breast correctly.
- Get lots of rest to clear up the infection.

### **Breast Care**

- Keep nipples dry between feedings. Some experts suggest expressing a few drops of breast milk on the nipples after breastfeeding and allowing them to air dry to prevent sore nipples.
- Avoid using harsh soaps and detergents on your nipples and areolae. If soap or shampoo gets on them during a shower or bath, rinse it off with plain, clean water. Too much soap on the nipples and areolae washes off protective oils and dries them out.
- Do not try to "toughen" the nipples by rubbing them with a towel or other cloth. This practice removes skin layers from the breast and irritates the nipples.
- Do not dry your nipples with a hair dryer or in heat lamp. This practice dries out the natural moisture of the skin and delays healing of sore or cracked nipples.
- Do not use creams, ointments, or oils on the nipples or areolae on a routine basis to heal sore nipples, abrasions, or cracks.
- Talk to a WIC breastfeeding expert if dry nipples are a problem and before using creams, ointments, or oils on the nipples or areolae.

### **Complementary Bottles**

- If you plan to exclusively breastfeed your infant, avoid feeding complementary bottles of infant formula or water, or using pacifiers for the first 2 to 4 weeks of an infant's life. This will make it easier for the newborn infant to learn to suckle properly on the breast in the early weeks.
- It is possible to combine both breastfeeding and formula feeding. However, as a woman increases the amount of infant formula fed and decreases the number of feedings, her breast milk production will decrease, possibly resulting in total weaning.

### **Appetite/Growth Spurts**

- Appetite or growth spurts are short periods of time when the infant breastfeeds more frequently than normal.

- Although a mother may feel she has an insufficient milk supply, the infant is actually signaling the mother's body to produce more milk to meet his growing needs.
- Frequent feeding during this period will increase her milk supply to meet her infant's needs during this period and eventually he or she will resume a more normal feeding pattern.
- Periods when appetite spurts usually occur are 8 to 12 days, 6 weeks, 3 months, and 6 months. However, the length of time an infant goes through an appetite spurt may vary.

## **Expressing Breast Milk**

- Breast milk can be expressed by hand or with a breast pump. Read the pump's instructions or ask a WIC breastfeeding expert to show you how.
- *In preparing to express milk:*
  - Wash your hands first;
  - Express the milk by hand or using a very clean pump; and
  - Collect the milk in a very clean container (plastic or glass containers are the best).
- *In storing expressed milk:*
  - Store bottles of breast milk in a properly working refrigerator or freezer after you collect the milk and until ready to use (the temperature of the refrigerator should be 39 degrees Fahrenheit or below and the freezer should be 0 degrees Fahrenheit or below; these temperatures can be checked using special thermometers for refrigerators and freezers). If either is not available (e.g., at work or school), the milk can be stored for a short time in a cooler packed with ice or an ice gel pack.
  - Use refrigerated bottles of milk within 48 hours from the time they were prepared.
  - If planning to freeze breast milk, freeze it immediately in portions generally needed for a single feeding.
  - Preferably, use clean glass or hard plastic bottles for storing and cap them tightly after filling.
  - Use a bottle brush to clean bottles and nipples in hot soapy water. Rinse thoroughly. If your infant is less than 3 months old, sterilize those items by boiling them in water for 5 minutes or clean them in a dishwasher, as shown in Figures 6a, 6b, and 6c, pages 96 -98, before reusing.
  - Frozen breast milk can be stored for up to 1 month in a properly working self-contained freezer unit attached to a refrigerator or 3 to 6 months in a separate low-temperature freezer that maintains 0 degrees Fahrenheit or less.
  - Label the container of milk for storage with the collection date. Use the oldest milk first.
  - Once frozen breast milk is thawed, use it within 24 hours and do not refreeze it. Do not add warm milk to cold or frozen milk. Each time a liquid is added to frozen milk, a thin layer of milk thaws --germs can grow in this warmer layer.
- *On traveling with expressed milk:*
  - Store bottles of expressed breast milk in a cooler with ice or a cold pack.



- Do not travel with bottles of milk kept at room temperature.
- *When thawing and warming expressed breast milk:*
  - Thaw and/or warm only as much breast milk as you think the infant will need for a feeding. Milk should be thawed quickly.
  - Thaw and warm a bottle of frozen expressed milk by:
    - Holding it under running cool water and then under running warm water; and
    - Shaking the bottle gently to mix (breast milk separates into a fatty layer and a watery layer when it is stored).
  - Do not set breast milk out to thaw at room temperature. Do not heat breast milk on a stove.
  - **Never use a microwave oven to thaw or warm breast milk --this is dangerous.** Microwave heating can result in your infant's mouth being burned from hot milk, a bottle exploding, or damage to special substances in the milk.
  - Always test the temperature before feeding to make sure that it is not too hot or cold (test by squirting a couple of drops onto the back of your hand).

### **Planning for Time Away From Your Infant**

*If you decide to go back to work or school or be away from your infant for some time, your infant can continue breastfeeding successfully. If you choose to work, go to school, or leave your infant temporarily in someone else's care, try these steps (for more detail on the steps, see pages 70 -73):*

- If possible, delay the return to work or school until the infant is at least 4 to 6 weeks old.
- Learn how to express breast milk by hand or by using a breast pump; try to begin expressing milk several weeks before you return to work or school (see above on expressing milk).
- Breastfeed the infant when home; pump milk during the day if possible. Some mothers go to their infant or have the infant brought to them for breastfeeding at lunch time. If you cannot express milk, infant formula prescribed by your health care provider can be provided to your infant when you are away.
- Make arrangements for safely storing expressed breast milk while away from home. It helps if a refrigerator is available for storage at work or school. If not, some mothers store their milk in a cooler packed with ice or an ice gel pack (see above for information on storage of breast milk).
- When making arrangements for child care for your infant (e.g., a babysitter or a day care center), try to choose a babysitter or day care center that is supportive of breastfeeding and, in the case of the center, allows you to breastfeed if you visit. Instruct the babysitter or center on:
  - How to use frozen breast milk; and
  - How much expressed breast milk (or infant formula) the infant usually eats and how often he or she usually eats. The person taking care of the infant should still be encouraged to follow the infant's lead in deciding when and how much to feed.
- Introduce your infant to drinking from a bottle and to being fed by someone else besides you -- some recommend introducing a bottle 2 weeks before returning to work or school.

- Breastfeed regularly on weekends and evenings. As the week progresses, some breastfeeding mothers may find that there seems to be less milk to express - this is normal. You will make enough milk if you:
  - Breastfeed (or pump) often (six or more times a day during the week and more on weekends);
  - Get adequate rest; and
  - Eat a well-balanced, nutritious diet.

### **Alcohol, Cigarette Smoking, Caffeine, and Other Drugs**

- Avoid drinking alcoholic beverages. If needed, ask clinic staff for information on services to limit your intake of alcohol.
- Avoid drinking more than 2-3 cups of coffee (caffeinated), hot chocolate, tea, or soft drinks containing caffeine (e.g., colas per day.
- If you smoke, try very hard to quit smoking.
- Your smoking harms your health and the health of your infant and children. Ask clinic staff for information on services to help you quit smoking. If you are unable to quit smoking, take these steps:
  - Cut down on the number of cigarettes smoked;
  - Do not smoke while breastfeeding or around your infant (nicotine from the cigarette smoke enters your infant's system from the air - the smoke can make your infant very sick); and
  - Refrain from smoking until right after a feeding so that nicotine levels will have time to decrease before the next feeding.
- Ask other smokers you know to avoid smoking around your infant or other children.
- Tell your health care provider that you are breastfeeding and check with him or her before taking any drugs or medicines, even over-the-counter drugs like aspirin and cold medicines. Also, consult with your health care provider before taking any vitamin-mineral supplements.
- Avoid using any recreational or illicit drugs. If you use illicit drugs, ask clinic staff for information on services to help you stop using drugs.

### **Weaning**

- If weaning a breastfed infant, try to do so gradually.
- You can wean your infant by replacing feedings from the breast with feedings of infant formula (or whole cow's milk if the infant is over 1 year old). The first feeding to replace is the one which the infant is least interested in or when the breasts do not feel full. Gradually, other feedings can be dropped and you can go from breastfeeding once per day to every other day.
- If your infant is over 6 months old and you wish to wean from the breast, the infant can be weaned to a cup and/or bottle. It may be easier to use powdered infant formula since it allows easy preparation of single feedings without wasting infant formula.
- Even though mostly weaned, an infant can still be breastfed just for comfort or to relax.

## **Infant Formula Feeding**

### **Types of Infant Formula**

- Iron-fortified cow's milk-based infant formula is the most appropriate choice for infants who are not breastfed. There are no known medical conditions for which the use of iron-fortified infant formula is contraindicated.
- Soy-based infant formulas are a safe and appropriate alternative to cow's milk infant formula. Soy-based infant formulas are indicated when:
  - The infant has galactosemia or hereditary lactase deficiency;
  - Caregivers choose a vegetarian diet for their infant; or,
  - Infants have documented IgE-mediated cow's milk protein allergy.
- DHA and ARA are long chain polyunsaturated fatty acids that are added to some infant formulas to mimic the composition of breast milk. Research demonstrating better cognitive function in breastfed infants has led some to support the addition of ARA and DHA to infant formula. The American Academy of Pediatrics (AAP) has not taken a position on the addition of DHA and ARA to infant formula.

### **When and How Much To Feed Your Infant**

- Newborn infants may initially feed 8 to 12 times per day (every 3 to 4 hours) and may drink from 2 to 3 ounces at a feeding. As your infant gets older, he or she will gradually drink more infant formula at each feeding, feed fewer times per day, and drink a larger total amount of infant formula in a day.
- Feed your infant when he or she shows signs of hunger (the infant may wake and toss, suck on a fist, cry or fuss, or look like he or she is going to cry to show hunger). Respond to the early signs of hunger; do not wait until the infant is upset or crying from hunger.
- Continue to feed until your infant indicates fullness. Signs of fullness include: sealing the lips, a decrease in sucking, spitting out the nipple, and turning away from the bottle.
- Between 6 and 12 months old, most infants begin eating more complementary foods thus decreasing their amount of infant formula intake.

### **Preparing for Feeding**

- Hold, rock, or play with your infant when fussy or crying before concluding that it is time for a feeding. It is important to show love, comfort, cuddle, and talk to your infant during feedings but also between feedings.
- Gently and slowly calm your infant to get ready for feeding.

### **How To Feed With a Bottle**

- Wash your hands with soap and hot water before feeding.
- Feed in a smooth and continuous fashion following your infant's lead on when to feed, how long to feed, and how much to feed.

- Hold your infant during bottle feedings. Tip the bottle so that milk fills the nipple and air does not get in. Hold your infant's head a little higher than the rest of the body to prevent milk from backing up in the inner ear and causing an ear infection.
- Make sure the nipple hole is large enough so that if you hold the bottle upside down, falling drops follow each other closely but do not make a stream. Also, adjust the nipple ring so that some air can get into the bottle to avoid a collapsing nipple.
- Do not prop the bottle -- this can cause ear infections and choking, and it deprives the infant of important cuddling and human contact.

## **Burping**

- Wait for your infant to pause or stop eating before burping. Burp by gently patting or rubbing the infant's back while he or she is held against the front of your shoulder and chest or held in a sitting position in your lap. Do not be surprised if your infant brings up some milk along with the swallowed air or if he or she does not burp.

## **Do Not Feed a Bottle While Napping or Sleeping**

- Do not offer the bottle at nap or bedtime. Allowing an infant to go to sleep with a bottle may lead to choking or early childhood tooth decay.

## **Drinking From a Cup**

- Infant formula can be offered from a cup as your infant gets older. Infants will consume less infant formula from the bottle as their intake of complementary foods and drinking from a cup increases.
- Try to wean your infant off the bottle and onto a cup by about 12 months of age.

## **Purchasing, Preparing, and Storing Infant Formula**

### ***Infant Formula Selection***

- In selecting cans of infant formula, check the formula's expiration date on the label, lid, or bottom of the can. If the date has passed, do not select that can.
- Do not select cans of infant formula that have dents, leaks, bulges, puffed ends, pinched tops or bottoms, or rust spots.
- Store cans of infant formula in a cool, indoor place - not in vehicles, garages, or outdoors.
- Before opening a can of infant formula, wash the can lid with soap and water to remove dirt that could contaminate the infant formula.

### ***Infant Formula Preparation***

- Prepare concentrated, ready-to-feed, or powdered infant formulas properly according to directions on the container or to instructions given to you by clinic staff. (Instructions for preparation of standard milk-based and soy-based infant formulas are also provided in figures 6a, 6b, and 6c, pages 96 - 98).

### ***Sterilization of Water and Bottles***

- If your infant is less than 3 months old, first clean bottles well using soap, hot water, and bottle and nipple brushes, and then either sterilize bottles and their parts (nipples, caps, rings) in boiling water for 5 minutes or wash them in a properly working dishwasher machine.
- If disposable plastic bottle liners are used, discard the bags after one use and either sterilize the nipples, rings, and caps in boiling water, or wash them in a dishwasher until the infant is at least 3 months old.
- After 3 months old, unless otherwise indicated by a health care provider, bottles and bottle parts can be washed using soap and hot water, and bottle and nipples brushes, or in a dishwasher.
- Preboil water for infant's formula until infant is 3 months old. Ask your health care provider about whether to boil the water used to prepare infant formula after infant is 3 months old.
- Water for infant formula preparation should be brought to a rolling boil, boiled for 1 - 2 minutes, and then cooled.

### **Safety of the Water Supply**

- If you're pregnant or have an infant or child, it is a good idea to have your water tested for contaminants (e.g., lead, nitrates, and bacteria) which may be in some water supplies. If you use well water or water from a questionable source, it is important to have the water tested to check its quality. For more information on water safety and water testing, you can contact:
  - Your local health department
  - Your State drinking water office or
    - The Environmental Protection Agency's (EPA) Safe Drinking Water Hotline at 1-800-426-4791, from 9:00 a.m. to 5:30 p.m., Monday through Friday, Eastern Time.

*If your water is contaminated, talk to your health care provider about finding an alternate source of clean, safe water for your infant. See pages 33 - 38 for more information on the safety of water (including on lead, nitrates, and copper in water, well water, bottled water, and home water treatment units).*

### **Storage of Infant Formula**

- When preparing infant formula for storage, pour the infant formula into bottles in single feeding portions (e.g., pour 26 ounces of standard dilution infant formula into five bottles each containing 4 to 6 ounces).
- Store bottles of prepared infant formula in a properly functioning refrigerator until ready to use. Bacterial growth is reduced when infant formula is kept in a refrigerator, at temperatures at or below 40 degrees Fahrenheit.
- In general, it is recommended that caregivers:
  - Use refrigerated bottles of concentrated or ready-to-feed infant formula within 48 hours of preparation; or
  - Use refrigerated bottles of powdered infant formula within 24 hours of preparation.
- Do not freeze infant formula.

- Do not leave prepared bottles of infant formula out at room temperature longer than 1 hour.
- Throw out any infant formula left in a bottle after a feeding. The mixture of infant formula with an infant's saliva promotes the growth of disease-causing germs.

### **Traveling With Infant Formula**

- When traveling with a formula-fed infant, take along a can of powdered infant formula and separate water in a clean bottle (or sterilized bottle if your infant is less than 3 months old). Then, the infant formula can be mixed up to make single bottles when needed. Alternately, single servings of infant formula could be used.
- Do not travel with bottles of unrefrigerated infant formula kept at room temperature.

### **Warming Infant Formula**

- If your infant prefers a warmed bottle, warm the bottle of infant formula immediately before serving by holding it under running warm water.
- Warm only as much infant formula as you think your infant will need for a feeding.
- Test the temperature of the liquid in the bottle before feeding to make sure it is not too hot or cold. Shake the bottle well before testing the temperature. Test the temperature by squirting a couple of drops of the liquid onto the back of your hand.
- **Never use a microwave oven to warm bottles --this is dangerous.** Microwave heating can result in your infant's mouth being burned from hot infant formula or a bottle exploding.

### **When Leaving Infant With a Temporary Caregiver**

- If you leave your infant in the care of a babysitter or family member, give that person specific instructions for warming, feeding, and handling bottles of infant formula.

## **Introducing Complementary Foods**

### **Signs of Developmental Readiness**

- Introduce complementary foods when your infant is developmentally ready, which means that the infant can:
  - Hold his or her head up and sit in a chair with support
  - Keep food in his or her mouth and swallow it and
  - Close his or her lips over a spoon and scrapes food off as a spoon is removed from the mouth.

### **Appropriate Age for Complementary Foods**

Between 4 to 6 months of age, most infants should be developmentally ready to consume complementary foods. The introduction of complementary foods should not be delayed beyond 8 months old.

### **How To Introduce Complementary Foods**

- Wash your infant's hands and face frequently and especially before he or she eats. An infant's hands can pick up germs, lead paint dust, etc., which could be harmful.
- Feed complementary foods using a small spoon and a small unbreakable bowl.
- Do not feed infant cereal or other complementary foods in a bottle or an "infant feeder." Infants who are not ready to eat from a spoon are not ready to eat complementary foods. Putting complementary foods in a bottle is a form of force feeding and is not recommended.
- During mealtime, your infant should be sitting comfortably in a sturdy highchair (or similar chair) that can safely secure him or her and prevent falls.
- When feeding your infant sit directly in front of your infant and offer the spoon straight ahead. Wait for the infant's mouth to open before putting the spoon to the infant's lips.
- At first, your infant may force much of the food out of his or her mouth, but gradually he or she will learn to move the food to the back of the mouth for swallowing. Over time, your infant will increase the amount of food eaten.
- Infants touch their food and play in it and should be expected to be messy. Be patient and do not scold your infant for spilling foods or beverages. Fabric or newspapers can be placed under the high chair to make cleaning up easier.
- Do not feed your infant while he or she is crawling or walking -- eating while moving could cause choking.

### **How Much and How Often To Feed**

- Let your infant be your guide as to how much food to feed. You may start with 1 to 2 teaspoons of each food once a day and gradually find that your infant will eat 2 to 4 tablespoons of each food at meals. At 4- to 6-months-old, the infant may start out with one meal per day that includes complementary foods, then gradually work up to about 3 meals and 2 to 3 snacks per day.
- Do not force your infant to finish a serving of food. Feed until your infant indicates fullness by:
  - Pulling away from the spoon
  - Turning his or her head away
  - Playing with the food
  - Sealing his or her lips
  - Pushing the food out of his or her mouth or
  - Throwing the food on the floor.
- Try to follow your infant's lead on how often and fast to feed, food preferences, and amount of food. Be patient and allow your infant time to adapt to the new textures and flavors of complementary foods.

### **Watching for Reactions to Food**

- Introduce new foods gradually. Introduce only one new food at a time. Wait at least 7 days between introducing new foods so that you can watch for any reactions to the food. Observe your infant closely for reactions after feeding a new food.
- Introduce a small amount (e.g., about 1 to 2 teaspoons) of a new food at first (this allows the infant to adapt to a food's flavor and texture).

- Use single-ingredient foods at first so you can see how infant accepts them (e.g., try plain rice infant cereal before rice infant cereal mixed with fruit).
- Symptoms of a reaction to food may include diarrhea, vomiting, coughing and wheezing, respiratory symptoms, ear infections, shock, abdominal pain, hives, skin rashes (like eczema), and extreme irritability. Stop feeding those foods that your infant has a reaction to and ask your health care provider about the reaction. If your infant seems to be having a severe reaction to food (e.g., difficulty breathing, shock), contact 911 or take the infant to the nearest emergency room immediately.
- If your infant does not like the taste of a new food at first, try offering it again later. It takes up to 10 to 15 exposures to a new food for an infant to readily accept the food.

### **Water Needs When Complementary Foods Are Introduced**

- An infant's health care provider may recommend feeding a small amount of sterile water (~ 4 to 8 ounces per day) in a cup when your infant has started eating a variety of complementary foods especially protein-rich complementary foods (e.g., home-prepared meats, commercially-prepared plain meats and mixed dinners, egg yolks, cheese).

### **Vitamin/Mineral Supplements**

- Do not give your infant vitamin drops unless your health care provider recommends them.
- Keep all vitamin/mineral pills or drops, and any other pills, medicines, poisons, etc., locked in a secure place out of your infant's reach.

### **Preparing Infant Foods at Home**

#### ***Cleanliness***

- Wash hands with soap and hot water and rinse thoroughly:
  - Before breastfeeding, bottle feeding, or preparing any food or bottles;
  - Before handling any food or food utensils;
  - After handling raw meat, poultry, or fish;
  - After changing an infant's diaper and clothing;
  - After using the bathroom or assisting a child in the bathroom;
  - After sneezing or coughing into tissues or hands or wiping noses, mouths, bottoms, sores, or cuts; and
  - After handling pets or other animals or garbage.
- Before preparing food, wash all working surfaces used to prepare food, such as countertops or tables, with soap and hot water and then rinse well with hot water.
- Before preparing food, wash all equipment, such as a blender, food mill, food processor, etc. carefully with soap and hot water. Rinse thoroughly with hot water and allow to air dry. Separate cutting boards should be used for animal foods (i.e., meat, poultry, and fish) and nonanimal foods (i.e., vegetables, fruits, breads).

#### ***Types of Food To Use***



- Start with quality, fresh foods, if possible, when making infant foods. Plain, frozen foods, with no added sugar, salt, or sauces are also a good choice. If canned foods are used, select those without salt or syrup or packed in their own juice (if regular canned foods are used, pour off syrup or salty water and rinse the food with clean water).

### ***Equipment.***

- Common kitchen equipment is all that is needed to make infant foods at home. The texture of foods can be changed to meet your infant's needs using a blender, food mill, food grinder, or strainer, or by mashing with a fork.

### ***Food Preparation***

#### *In preparing the food:*

- Wash, peel, and remove the seeds or pits from vegetables and fruits. Cook vegetables and hard fruits, like apples, until tender. Edible skins and peels can be removed either before or after cooking.
- Remove bones, fat, and gristle from meats, poultry, and fish. Meats, poultry, fish, dried beans or peas, and egg yolks (not egg whites) should be well cooked. Baking, boiling, broiling, poaching, and steaming are good cooking methods.
- Blend, grind, or mash the food to a texture and consistency that is appropriate for your infant's stage of development. Food texture should progress from being pureed to mashed to diced. Providing new textures encourages the infant's further development.
- If using the same foods that the family eats, the infant's portion should be separated before adding salt, sugar, syrup, gravy, sauces, etc. Infant food may taste bland to you, but it is fine for your infant.

### **Reducing Lead Exposure From Food**

- Do not feed your infant canned imported foods or beverages -- these cans may have lead seams (lead in seams can enter the food).
- In preparing, storing, or serving foods for your infant:
  - Avoid using ceramic ware or pottery, especially if imported from another country, for cooking, storing, or serving food or beverages.
  - Do not use leaded crystal bowls, pitchers, or other containers to store foods or beverages.
  - Never cook or store foods in antique or decorative ceramic or pewter vessels or dishes.
  - Do not use antique utensils for preparing or serving infant's foods.
  - Store foods or beverages in plastic or regular glass containers.

### **Serving Food**

- Serve freshly cooked food to your infant shortly after preparing it. Allow the food to cool for a short time so that it does not burn your infant's mouth. Before feeding, test the temperature of foods.

- Foods should not be chewed by someone else. Saliva from another person can add harmful bacteria to an infant's food.

### **Storage of Food**

- If freshly cooked food is not served to the infant, immediately refrigerate or freeze it. (Use a special thermometer to test if your refrigerator is 40 degrees F or below and your freezer is 0 degrees F or below.) Do not allow cooked foods to stand at room temperature; harmful germs can grow in the food at this temperature.
- Throw out foods that are left unrefrigerated for 2 hours. Remember the concept "If in doubt, throw it out." That is, if you think that you may have left your infant's food unrefrigerated for 2 or more hours, throw it out. Do not taste the food to see if it is safe because a food can contain harmful germs yet taste and smell normal.
- Two easy methods of storing infant food in serving-size amounts (after it has cooled) in the freezer include the ice cube tray method and the cookie sheet method:
  - Pour cooked pureed food into sections of a clean ice cube tray; cover with plastic wrap, a lid, or aluminum foil; and place into the freezer (ice cube tray method).
  - Place 1 to 2 tablespoons of cooked pureed food in separate spots on a clean cookie sheet, cover with plastic wrap or aluminum foil, and place into the freezer (cookie sheet method).
    - When frozen solid, the frozen food cubes or pieces can be stored in a freezer container or plastic freezer bags in the freezer. Label and date the bags or containers of frozen food and use them within 1 month.
    - When ready to use, the desired number of cubes or pieces can be removed from the bag or container and reheated.
    - Thaw food in the refrigerator or under cold running water. Do not thaw frozen infant food at room temperature. See pages 70-71 for more detailed instructions.

### **Using Stored Food**

- Use freshly prepared refrigerated food within 48 hours (except meats and egg yolks which should be used within 24 hours). Use frozen foods within 1 month.
- Thaw food in refrigerator or under cold running water and use it within 48 hours.
- Thoroughly reheat refrigerated or frozen home-prepared infant foods before feeding them to your infant. Reheating kills harmful germs that can grow slowly while a food is in the refrigerator or during thawing. Test the temperature of the food before feeding it to your infant.
- Throw out any leftover food that your infant does not eat.
- Do not refreeze infant food that has been removed from the freezer and allowed to thaw.

### **Purchasing, Serving, and Storing Commercially-Prepared Infant Food**

#### ***Single-Ingredient Infant Foods Provide More Nutrition for Your Money***

- Single-ingredient infant foods (like plain fruits, vegetables, and meats) provide more nutrition for your money than combination foods or mixed dinners.
- Older infants who are ready for foods with a chunkier texture can be transitioned to mashed or finely chopped home-prepared foods instead of infant food combination dinners; this helps the infant learn new eating skills.

### ***Read Food Labels***

- Read the ingredient list on the food label. Ingredients are listed on the label in order of those present in the largest amount to the smallest amount. Labels help you to tell, for example, which foods contain more water than others, and which contain added sugar and salt.

### ***Selecting Commercially-Prepared Infant Foods***

- Select containers that are clean, have no cracks, have no rust on the lid, and are not sticky or stained. Sticky jars may be cracked or have glass on them from cracked jars they were packed with.
- Observe “use-by” dates for purchase and pantry storage of unopened containers. If the date has passed, do not use the food.

### ***Opening Containers***

- Wash the container with soap and hot water before opening it.
- Make sure the vacuum seal on a jar or tub of infant food has not been broken before using the food.
- To make it easier to open the jar, run it under warm water for a few minutes. Do not tap the jar lid with a utensil or bang it against a hard surface; this could break glass chips into the food. If a grating sound is heard when opening the jar lid, check to see if there are any glass particles under the lid.

### ***Heating the Food***

- If you need to heat the food, a safe way to do so is by removing it from a container, heating it in a pan on the stove, stirring it, and testing its temperature before feeding.
- Never heat containers of infant food in a microwave oven. Even though some infant food jars indicate that they can be heated in a microwave, this could be dangerous. A microwave oven may heat the food unevenly so that some of the food is hot enough to burn the infant's mouth.

### ***Serving the Food***

- Remove the desired amount of food from the infant food container using a clean spoon and put it into a bowl for serving. Do not use the jar or tub as a serving dish. Most infants cannot finish a small container of infant food at one feeding. Always examine the food for abnormal particles when transferring it from the container to the bowl.

- If a spoon used for feeding is placed in a jar of food that will be stored and used for another feeding, the infant's saliva could contaminate and spoil the rest of the food.
- Throw away any leftover food in the bowl. Do not put leftover food back into the container because it could add germs to the food in the container.

### ***Storing the Food***

- Once a container is opened, store it in the refrigerator and use the food within 48 hours, except for infant food meats and egg yolks, which should be used within 24 hours. If food is not used within these time periods, throw it out.

### **When Leaving Infant With a Temporary Caregiver**

- If you leave your infant in the care of a babysitter or family member, give that person specific instructions for warming, feeding, and handling the infant's food. Do not assume the person knows how to appropriately handle infant foods.

### **Use of Specific Types of Foods**

*(See Chapter 5 for more detailed information on the purchase, preparation, serving, and storage of the below foods.)*

#### ***Infant Cereal***

- Infant cereal can be introduced between ages 4 and 6 months if the infant is developmentally ready. Feed cereal to the infant using a spoon, not a bottle.
- Start with rice infant cereal as the first cereal introduced, followed by oat and barley cereals. Wait at least 7 days between trying each new cereal.
- Wait to introduce wheat infant cereal until your infant is 8 months old, when the infant is less likely to have an allergic reaction to wheat. Mixed grain infant cereals and infant cereal-and-fruit combinations may be tried after your infant has been introduced to each food separately in the mixture. Feed your infant cereal that is designed for infants. Avoid feeding your infant ready-to-eat cereals designed for adults and older children (these cereals do not contain the right amount of vitamins and minerals for an infant and may cause choking).
- Mix dry-pack infant rice cereal with expressed breast milk, infant formula, water, or pasteurized 100 percent fruit juice (if the infant has already tried it and had no reactions to it) to produce a smooth mixture. The consistency of all cereals can be thickened by adding less liquid as your infant matures. Measure the desired amount of dry cereal before adding the liquid.

#### ***Fruit Juice***

- Introduce pasteurized 100 percent fruit juice Only when your infant is able to drink it from a cup with help. Do not feed fruit juice in a bottle because this practice increases the risk of developing early childhood tooth decay.

- Offer your infant only pasteurized 100 percent fruit juice. Avoid feeding your infant any fruit-flavored drinks, punches or aides, soda pop, gelatin water, or other beverages that are high in sugar and contain few nutrients. Read food labels carefully. Introduce single varieties of fruit juice first. If your infant has no reactions, then mixed juices, containing the single varieties of juice already tried, can be introduced.
- Limit the total amount of juice fed to an infant to about 4 to 6 ounces per day because too much juice can spoil the infant's appetite for other nutritious foods or cause diarrhea.
- Watch for any reactions in your infant when introducing citrus (orange, tangerine, or grapefruit), pineapple, or tomato juices and delay introducing them until the sixth month or older -- these juices may cause allergic reactions in some infants. If canned juices are used, pour the juice into a glass or plastic container for storage after the can is opened. Once the can is opened and air enters the can, the can begins to corrode, which can affect the juice's flavor.
- Avoid feeding your infant imported canned juices because the seams of these cans may contain lead.
- Do not self-treat diarrhea or illness in your infant with fruit juices or sweetened beverages. Contact your health care provider.

### ***Vegetables and Fruits***

- Vegetables and fruits can be introduced between 4 and 6 months old if the infant is developmentally ready. Almost any soft-cooked fruit or vegetable can be fed as long as it is prepared in a consistency that the infant can safely eat. As your infant gets older, the thickness and lumpiness of vegetables and fruits can gradually be increased.
- Remember to wait at least 7 days between introducing each vegetable or fruit and observe your infant carefully for reactions to the food.
- These vegetables, for example, can be prepared as infant foods: asparagus, broccoli, brussels sprouts, cabbage, carrots, cauliflower, collard greens, green beans, green peas, green peppers, kohlrabi, kale, plantain, potatoes, spinach, summer or winter squash, and sweet potatoes. Fresh vegetables generally need to be cooked until just tender enough to be pureed or mashed.
- Do not feed home-prepared spinach, beets, turnips, carrots, or collard greens to your infant if less than 6 months old. These vegetables all tend to be high in nitrates (from the soil) which could harm very young infants.
- These fruits, for example, can be mashed (after peeling) without cooking if ripe and soft: apricots, avocado, bananas, cantaloupe, mango, melon, nectarines, papaya, peaches, pears, and plums. Stewed pitted dried fruits can be pureed or mashed. Apples, pears, and dried fruits usually need to be cooked in order to be pureed or mashed easily. Older infants who are developmentally ready can be given small pieces of ripe, soft fruit, such as ripe peeled peach, nectarine, or banana.
- Avoid feeding these vegetables and fruits to your infant due to the risk of choking: raw vegetables (including green peas, string beans, celery, carrot, etc.), cooked or raw whole corn kernels, whole grape or cherry tomatoes, whole grapes, berries, cherries, or melon balls, uncooked dried fruit (including raisins), fruit pieces with pits, whole pieces of canned fruit, and hard pieces of raw fruit.

- If commercially prepared infant food is used, plain vegetables and fruit provide more nutrition for your money than fruit desserts and mixtures.
- If vegetables and fruits are prepared at home, try to select high quality fresh or plain frozen produce to prepare infant's food. If canned foods are used, select those without salt or syrup, or packed in their own juice (if regular canned foods are used, pour off syrup or salty water and rinse the food with clean water).
- Store opened jars of infant food vegetables or fruit for no longer than 48 hours in the refrigerator.

### ***Protein-Rich Foods***

- Infants can be introduced to these foods between 6 and 8 months old: cooked strained or pureed lean meat, chicken, or fish, cooked egg yolk, cooked dried beans or peas, tofu, mild cheese, cottage cheese, or yogurt.
- If using commercially prepared infant food meats, single-ingredient containers of meat (like beef, lamb, chicken) contain more nutrients for your money than mixed meat dinners (like chicken noodle, vegetable beef, or turkey rice dinner).
- After purchasing meats, poultry, fish, or eggs, get them home quickly and store them in the refrigerator or freezer. Keep juices from raw meat, poultry, and fish away from other foods (the juices that drip may have germs).
- If home-cooked meats are prepared, it is best to bake, broil, poach, stew, or boil the meat, poultry, or fish. After cooking, puree or finely chop the food. There is no need to add gravies or sauces to meats prepared for your infant.
- Cook meat, poultry, and fish until they are done:
  - Color is not a reliable indicator of the safety or doneness of meat, poultry, and fish.
  - Cook ground meats to 160 degrees Fahrenheit; ground poultry to 165 degrees Fahrenheit.
  - Beef, veal, and lamb steaks, roasts, and chops may be cooked to 145 degrees Fahrenheit.
  - All cuts of fresh pork should be cooked to 160 degrees Fahrenheit.
  - Whole poultry should reach 180 degrees Fahrenheit in the thigh; 170 degrees Fahrenheit in the breast.
  - Fish should be cooked to 145 degrees Fahrenheit.
- Store freshly cooked or opened containers of plain strained meats and egg yolks for no longer than 24 hours in a refrigerator.
- Avoid feeding your infant these foods:
  - Egg white, whole egg (because of the egg white), or shellfish before 1 year old -- infants are often allergic to these foods;
  - Hot dogs, sausage, luncheon meats, bacon, or other cured meats --these meat products contain high levels of salt and fat; and
  - The fat and skin trimmed from meats.
- Never feed your infant any raw or partially cooked eggs, meat, poultry, or fish or products that contain them -- these foods may contain harmful germs that could make your infant very sick.
- Watch closely for any reactions in your infant when introducing any fish. Fish may cause allergic reactions in some infants. Contact your State department of health or natural resources about the safety of local fresh water sport fish before feeding them to your infant.

Avoid feeding your infant these fish: shark, swordfish, king mackerel, and tilefish (tilapia). Check for and carefully remove bones before cooking fish.

- Do not use eggs that are broken in the egg carton.
- Only feed the yolk of an egg to your infant. Do not feed egg whites to your infant until 1 year or older.
- Cottage cheese, hard cheeses, and yogurt can be gradually introduced as occasional foods. Cheese can be eaten cooked in foods or as slices (do not feed chunks of cheese, which could cause choking). Observe your infant closely for reactions after he or she eats these foods.
- Cooked legumes (dry beans and peas) or tofu (bean curd made from soybeans) can be introduced into an infant's diet as a protein food. It is best to introduce small quantities (1 to 2 teaspoons) of mashed or pureed legumes at first (whole beans or peas could cause choking). Observe to see if your infant does not like them, has a reaction to them, or appears to have difficulty digesting them. If so, they can be introduced again later.
- Tofu (bean curd) can also be mashed and fed to infants. Select fresh tofu; i.e., tofu prepared daily if made fresh or water-packed tofu that has not expired.
- When your infant starts on any of the above protein-rich foods, give him or her some water (about 4 to 8 ounces) to drink each day.

### ***Grain Products***

- Around 6 to 8 months old, infants can try plain crackers, teething biscuits, whole-grain or enriched bread, plain cooked noodles, macaroni, ground or mashed rice, corn grits, soft tortillas, zwieback, and graham crackers. An infant's risk of having a reaction to wheat decreases at this age. These foods can be introduced as snacks, finger foods, or as additional foods at meals.
- Avoid feeding your infant highly seasoned snack crackers or those with seeds; snack potato or corn chips, pretzels, cheese twists, breads with nut pieces, or whole-grain kernels of cooked rice, barley, wheat, or other grains. Infants can choke on these foods.

### ***Finger Foods***

- Between 6 and 8 months old, infants begin to feed themselves with their hands and can start to eat some foods that they can pick up and eat easily without choking.
- Good finger foods include dry toast, dry breakfast cereal, small pieces of soft, ripe, peeled fruits (like banana) or soft cooked vegetables, small slices of mild cheese, crackers, or teething biscuits. Make sure that the infant eats biscuits, toast, or crackers (and other foods) in an upright position.

### ***Sweetened Foods and Sweeteners***

- Avoid feeding your infant these foods:
  - Chocolate, before 1 year old -- some infants are allergic to this food;
  - Commercially prepared infant food desserts or commercial cakes, cookies, candies, and sweet pastries -- these foods tend to be high in sugar;
  - Sugar, maple syrup, molasses, corn syrup, glucose, or other syrups added to the infant's food or beverages, or put onto a pacifier; and

- Foods, beverages, or powders containing artificial sweeteners.
- **Never feed honey -- plain, in cooking or baking, or as part of processed foods--to your infant.** Honey sometimes contains dangerous spores which can cause a serious illness in an infant, called infant botulism.

### **Avoid Feeding Your Infant Excessive Amounts of Water**

*Do not feed your infant large amounts of water. Remember these points to make sure your infant does not take in too much water:*

- Do not dilute your infant's formula with extra water in order to "stretch" it. Make and dilute infant formula correctly (see pages 94 - 95 and Figures 6a, 6b, and 6c, pages 96 - 98).
- If you have run out of the infant formula you get from WIC or CSFP and need more to feed your infant:
  - Ask the WIC or CSF Program staff about providing you with powdered infant formula which makes more formula per day than the concentrated or ready-to-feed infant formula; and
  - Contact the WIC or CSF Program staff or a social worker for help in getting extra formula for your infant.
- Do not feed your infant plain water or dilute liquids (e.g., fruit juice, sweetened beverages, and tea) in place of breast milk or infant formula. Water and fruit juice are meant to be fed in small amounts (about 4 to 8 ounces per day for water and 4 to 6 ounces per day for fruit juice).
- Do not let your infant suck on or feed from a bottle of water or dilute liquids (e.g., fruit juice, sweetened beverages, tea) all day or for long periods of time. Young infants need to be fed enough breast milk, infant formula, and/or appropriate complementary foods to meet nutrition needs.
- Do not self-treat your infant if he has diarrhea or any other illness. See your health care provider immediately.
- Do not routinely feed water to your infant right after breastfeeding or formula feedings.
- An infant who drinks too much water and not enough breast milk, infant formula, or complementary food can get very sick.

*Avoid feeding your infant any of these beverages:*

- Coffee, regular or herbal teas, or hot chocolate -- these beverages contain substances that may harm your infant;
- Whole cow's milk, goat's milk, soy or rice drinks or beverages, imitation milks, coffee creamers – these beverages do not have the right amount of nutrients needed by your infant.

### **Choking Prevention**

*Infants can choke easily. To decrease your infant's risk of choking:*

- Hold your infant while feeding a bottle. Never "prop" a bottle for your infant at any age. Do not leave a bottle in infant's crib or playpen. (Older infants can hold the bottle while feeding)



but they should be sitting in your arms or in a highchair or similar chair and the bottle should be taken away when the feeding is finished).

- Make sure the hole in the nipple of your infant's bottle is not too large, to avoid the liquid from flowing through too rapidly.
- Supervise your infant's mealtimes and snacks and do not leave the infant alone when eating. Make sure your infant is sitting still and in an upright position during meals. Encourage your infant to eat slowly.
- Feed small portions.
- Avoid using teething pain relief medicine before mealtime since it may interfere with chewing.
- Serve foods that are the appropriate texture for your infant's development. Prepare food so that it is soft and does not require much chewing.
- Puree, blend, grind, or mash and moisten food for young infants.
- For the older infant close to 1 year old, who can chew cut foods into small pieces or thin slices that can easily be chewed.
- Cut round foods, like cooked carrots, into short strips rather than round pieces. Do not feed raw whole grapes, cherries, berries, melon balls, and grape or cherry tomatoes to your infant; these fruits and vegetables should be cut into quarters, with pits removed, before feeding. Large pieces of food can become lodged in the throat and cause choking.
- Remove all bones from poultry and meat, and especially from fish, before cooking. Remove hard pits and seeds from vegetables and fruit.
- Substitute foods that may cause choking with a safe substitute, such as meat chopped up or mashed ground beef instead of hot dogs or pieces of tough meat.
- Do not feed whole grain kernels of wheat, barley, rice, etc. to your infant. These grains must be cooked and finely ground or mashed before being fed to an infant.
- Do not feed whole nuts or seeds or nut/seed butters to infants. Whole nuts and seeds can lodge in the throat or get caught in the windpipe and nut/seed butters can get stuck to the roof of the mouth.
- Make sure that biscuits, toast, and crackers are eaten only when infant is in an upright position. An infant who eats these foods while lying down could choke on crumbs.
- In summary, do not feed infants any:
  - Tough or large chunks of meat;
  - Hot dogs, meat sticks, or sausages;
  - Fish with bones;
  - Large chunks of cheese, especially string cheese;
  - Peanuts or other nuts and seeds;
  - Peanut and other nut/seed butters;
  - Whole beans;
  - Cooked or raw whole-kernel corn;
  - Whole uncut cherry or grape tomatoes;
  - Raw vegetable pieces (e.g., carrots, green peas, string beans, celery, etc.) or hard pieces of partially cooked vegetables;
  - Whole uncut grapes, berries, cherries, or melon balls or hard pieces of raw fruit;
  - Whole pieces of canned fruit (cut them up instead);
  - Fruit pieces with pits or seeds;
  - Uncooked raisins and other dried fruit;

- Plain wheat germ;
- Whole grain kernels;
- Popcorn;
- Potato/corn chips and similar snack foods;
- Pretzels;
- Hard candy, jelly beans, caramels or gum drops/gummy candies;
- Chewing gum; or
- Marshmallows.

## **Oral Health**

### **Cleaning the Mouth and Teeth**

*To keep your infant's teeth and gums clean and thus prevent tooth decay:*

- Before teeth appear: Clean your infant's mouth beginning from the first day of life. Wipe out the mouth gently and massage the gums with a clean damp gauze pad or washcloth after feedings or at least twice a day, including before bedtime. More frequent cleaning than twice a day may be recommended by a health care provider.
- Once teeth appear:
  - Begin cleaning your infant's teeth as soon as they appear through the gums. Clean the teeth well after each feeding or at least twice a day, including before bedtime. More frequent cleaning than twice a day may be recommended by a health care provider, especially if your infant starts to develop tooth decay.
  - To clean the teeth, a very small, child-size toothbrush with soft, rounded end bristles may be used with extreme care. Use water only, not toothpaste since an infant will swallow it. Continue using a clean damp gauze pad or washcloth to clean those areas in the mouth without teeth.

### **Teething Tips**

- During teething, your infant's gums may be red and puffy and you may feel or see the new tooth coming out.
- To soothe your infant's gums during teething, chill a clean favorite rattle, teething ring, pacifier, or a spoon in the refrigerator and offer it to chew on. You can also try cleaning the infant's mouth 2 to 3 times per day with a clean damp gauze pad or washcloth.
- Do not offer your infant ice chips or raw, hard vegetables like carrots, or rub alcohol on the infant's gums, to soothe your teething infant.
- If your health care provider prescribes teething pain relief medicine, avoid giving it to your infant before mealtime because it may interfere with chewing.

### **General Prevention of Tooth Decay**

*To prevent tooth decay:*

- Bottles should be used for feeding only infant formula, expressed breast milk, or a small amount of water (see guidelines on pages 25 - 27 on feeding water).
- Feed 100 percent pasteurized fruit juice only in a cup. Drinking from a cup will be messy at first. Be patient and allow your infant to learn this skill.
- Do not feed sweetened beverages to infants either in a bottle or a cup. These beverages include water sweetened with honey, sugar, or corn syrup; soda pop; sweetened iced tea; fruit drinks, punches, or ades; sweetened gelatin; or other sweetened drinks. The infant should instead be fed more nutritious beverages that will help him or her grow, such as breast milk or infant formula (water and fruit juice can be fed, but in small amounts). If your infant is having diarrhea, contact your health care provider for advice on what to feed him or her to drink and eat.
- Do not leave a bottle in the infant's crib or playpen.
- Do not allow your infant to walk around or sit alone with a bottle or spill-proof cup for long periods.
- Offer the bottle only at feeding time, not when going to bed to sleep or for a nap. If your infant falls asleep during a feeding, move the infant around slightly to stimulate swallowing before putting him or her down to sleep.
- If you are having trouble getting your infant to stop taking a bedtime bottle, try showing your infant love in different ways besides the bedtime bottle; for example, give a security blanket or teddy bear, sing or play music, hold or rock your infant, or read a story to your infant.
- Never give your infant a pacifier dipped in honey, syrup, or sugar.
- Avoid giving your infant any concentrated sweet foods such as lollipops, sweet candies, candy bars, sweet cookies or cakes, or sweetened cereals, or adding sweeteners to his or her food.
- Gradually introduce your infant to infant formula/ breast milk from a cup between ages 6 and 12 months. Try to wean your infant off the bottle entirely by about 12 months old.
- Follow the advice of your medical or dental health care provider regarding your infant's fluoride needs.
- To discover and prevent tooth decay, take your infant to your health care provider or a pediatric dentist for a dental check by 12 months of age. If your infant seems to have dental problems or decay before that age, take him or her to a health care provider as soon as possible.
- A mother with tooth decay may increase her infant's chances of getting tooth decay. Thus, try to:
  - Avoid sharing eating utensils or toothbrushes with your infant;
  - Do not chew food and then feed it to your infant;
  - Take care of your mouth with regular toothbrushing, flossing, and dental care; and
  - Obtain treatment for any tooth decay you have.

## **Preventing Obesity**

*The following factors may play a part in the development of childhood obesity:*

- Breastfeeding may be linked to lower rates of childhood obesity but research is still ongoing;

- Late weaning from a bottle has been linked to higher rates of obesity;
- Rapid weight gain in infancy has been linked to higher rates of obesity;
- A high degree of caregiver control over the infant or child's intake has been linked to higher rates of obesity; and
- Diets that are overly restrictive have been linked to higher rates of obesity.

## Promoting Physical Activity

- Physical activity is important for infant development and to establish healthy skills and behaviors for later childhood. Caregivers should:
  - Nurture their infant's motor skill development and encourage physical activity;
  - Participate in parent-infant play groups;
  - Provide toys and activities that encourage infants to move and do things for themselves in a safe environment;
  - Gently move their infant to encourage muscle development and connections between the brain and muscles;
  - Avoid rough activities and pay attention to whether their infant is distressed and cries when played with too vigorously;
  - Avoid extended periods of inactivity, such as in an infant seat or swing; and,
  - Assist the infant's development of head and neck control.
- **Infant walkers are dangerous and should never be used.** Use of other infant equipment, such as swings, highchairs, bouncers, and infant seats should be kept to a minimum to encourage physical development.
- Place your infant on his or her back to sleep or rest (whether after feeding or at bedtime) to minimize the risk of Sudden Infant Death Syndrome (SIDS).
- When your infant is developmentally ready, place him/her on his stomach for some time each day during play to encourage development of head and neck control and enhance motor skill development.
- Structured infant exercise programs are not necessary to encourage healthy physical development and may place an infant at risk for injury.
- Infants should not be allowed to view television or other entertainment media. Instead, they should interact with caregivers in activities that stimulate brain development, such as talking, singing, playing, and reading.